

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 2
RECEIVED
CENTRAL FAX CENTER

FEB 11 2008

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling enablement/disablement of I/O requests from plural host computers to a disk device, said method comprising:
in said host computers,

transmitting access-right change commands to said disk device,
said access-right change commands including one piece or plural
pieces of information having I/O-enable/disable information and host
identification information to correspond to each other in a one-to-one
correspondence manner, said I/O-enable/disable information indicating
whether or not said disk device will execute said I/O requests from said
host computers, said host identification information identifying said
respective host computers, and

issuing, to said disk device, said I/O requests to which said host
computers have added said host identification information; and
in said disk device,

changing a batch of said I/O-enable/disable information on each
~~host-computer basic relating to plural paths between said host~~
~~computers and said disk device in response to in accordance with one~~
~~of said access-right change commands from one of said host~~
computers, and storing and holding said I/O-enable/disable information
in an access-right management table.

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 3

identifying request-source host computers in response to said I/O requests from said host computers, and, based on said host identification information and said I/O-enable/disable information held in said access-right management table, enabling or disabling said I/O requests to be executed on each host-computer's node basis.

2. (Previously Presented) The method according to Claim 1, comprising:

in said host computers,

transmitting path information to said disk device, said path information having said host identification information and path identification information correspond to each other, said path identification information identifying all of logical paths from said host computers to said disk device, and

issuing said I/O requests to which said host computers have added said path identification information; and

in said disk device,

storing and holding said path identification information transmitted from said host computers,

extracting said path identification information from said I/O requests transmitted from said host computers, extracting said host identification information corresponding to said path identification information stored and held, and extracting said I/O-enable/disable

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 4

information with which said host identification information extracted
coincides, and

using the extracted said I/O enable/disable information, to
enable or disable each I/O request for said I/O requests on each host-
computer's node basis.

3. (Previously Presented) The method according to Claim 1, comprising:
if an I/O-disable command is included in said I/O-enable/disable information
in said access-right change commands transmitted from said host computers,
then in said disk device,

extracting, from among said access-right change commands,
host identification information corresponding to said I/O-enable/disable
information with respect to all of I/O-disable commands included in
said same access-right change commands, and

updating said I/O-enable/disable information for host
identification information into an I/O-disable state, said host
identification information coinciding with said host identification
information extracted and being stored and held in said disk device,
and

if an I/O-enable command is included in said I/O-enable/disable information in
said access-right change commands transmitted from said host computers,

then in said disk device,

extracting, from among said access-right change commands,
host identification information corresponding to said I/O-enable/disable

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 5

information with respect to all of I/O-enable commands included in said same access-right change commands, and updating said I/O-enable/disable information for host identification information into an I/O-enable state, said host identification information coinciding with said host identification information extracted and being stored and held in said disk device.

4. (Previously Presented) The method according to Claim 3, wherein said processing of updating said I/O-enable/disable information for said host identification information into said I/O-enable state is kept waiting for all of I/Os to be completed, and is executed after completion of all of said I/Os, with said host identification information being stored and held in said disk device, and all of said I/Os being in processing in said host computers.

5. (Previously Presented) The method according to Claim 2, wherein said disk device is configured to include plural logical disks resulting from logically dividing an assembly of disk drives, said host computers,

transmitting said access-right change commands to said disk device, said access-right change commands including one piece or plural pieces of information having said I/O-enable/disable information, said host identification information and logical-disk identification information correspond to each other, said I/O-enable/disable information indicating whether or not said disk device will execute said

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 6

I/O requests from said host computers, said host identification information identifying said respective host computers, and said logical-disk identification information identifying said logical disks, and issuing, to said disk device, said I/O requests to which said host computers have added said logical-disk identification information and said path identification information;

said disk device,

changing a batch of said I/O-enable/disable information on each host-computer basis in accordance with said access-right change commands from said host computers, and storing and holding said access-right change commands,

extracting said path identification information from said I/O requests transmitted from said host computers, extracting said host identification information corresponding to said path identification information from said access-right change commands stored and held, and extracting said I/O-enable/disable information for which said host identification information extracted and logical-disk identification information on logical disks selected as targets of said I/O requests coincide with each other, and

using the extracted I/O-enable/disable information, to enable or disable each I/O request for said I/O requests on each host-computer's node basis.

OHASHI, et.al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 7

6. (Previously Presented) The method according to Claim 5, wherein said extraction of said I/O-enable/disable information comprising:
extracting said logical-disk identification information and said host identification information from said access-right change commands, and extracting said I/O-enable/disable information whose logical-disk identification information and host identification information coincide with said logical-disk identification information and said host identification information extracted.

7. (Currently Amended) A method of controlling enablement/disablement of I/O requests from plural host computers to a disk device, said method comprising, wherein said host computers possess plural application processes, and wherein said application processes including:

transmitting access-right change commands to said disk device, said access-right change commands including one piece or plural pieces of information having I/O-enable/disable information and application-process identification information to correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said application processes, said application-process identification information identifying said respective application processes, and,

issuing, to said disk device, said I/O requests to which said application processes have added said application-process identification information; and

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 8

said disk device including operations of:

changing a batch of said I/O-enable/disable information on each application-process basis in accordance with relating to plural paths between said host computers and said disk device in response to one of said access-right change commands from one of said application processes, and storing and holding said I/O-enable/disable information in an access-right management table,

identifying request-source application processes in response to said I/O requests from said application processes, and,

based on said application-process identification information and said I/O-enable/disable information held in said access-right management table, enabling or disabling said I/O requests to be executed on each application-process's node basis.

8. (Currently Amended) An information processing system configured to control execution enablement/disablement of I/O requests from plural host computers to a disk device, comprising:

each of said host computers including:

an I/O request unit for issuing an I/O request to which said I/O request unit has added host identification information for identifying said respective host computers, and

an access-right change command unit for transmitting an access-right change command to said disk device, said access-right change command including one piece or plural pieces of information

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 9

having I/O-enable/disable information and said host identification information correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said host computers; and

said disk device including:

an access-right management table for storing and holding said access-right change commands from said host computers,

an access control unit for identifying request-source host computers of said I/O requests, and for judging whether to enable/disable said I/O requests to be executed on each host-computer basis, based upon said host identification information and said access-right management table, and

an access-right change unit that, in accordance with response to one of said access-right change commands from one of said host computers within said access-right management table, changes in a batch of said I/O-enable/disable information relating to plural paths between said host computers and said disk device on each host-computer basis,

said disk device enabling or disabling said I/O requests on each host-computer's node basis, with said host computers being said I/O request sources.

OHASHI, et al., 10/806,338
11 February 2008 Amendment
Responsive to 09 November 2007 Office Action

500.44934X00 / W1482-01EO
Page 10

9. (Previously Presented) The information processing system according to

Claim 8, wherein

each of said host computers comprises a path-information transmission unit for transmitting path information to said disk device, said path information having said host identification information and path identification information correspond to each other, said path identification information identifying all of logical paths from said host computers to said disk device,

said disk device comprising a path-information management table for storing and holding said path information transmitted from said path-information transmission unit in each of said host computers,

said I/O request unit issuing, to said disk device, said I/O request to which said I/O request unit has added said path identification information,

said access control unit

extracting said path identification information from said I/O requests transmitted from said host computers, making reference to said path-information management table to extract said host identification information corresponding to said path identification information extracted, and making reference to said access-right management table to extract said I/O-enable/disable information with which said host identification information extracted coincides, and enabling or disabling said I/O requests to be executed on each host-computer's node basis.